

THE Unexplained

MYSTERIES OF MIND SPACE & TIME

UFOs in action

Ancient technology

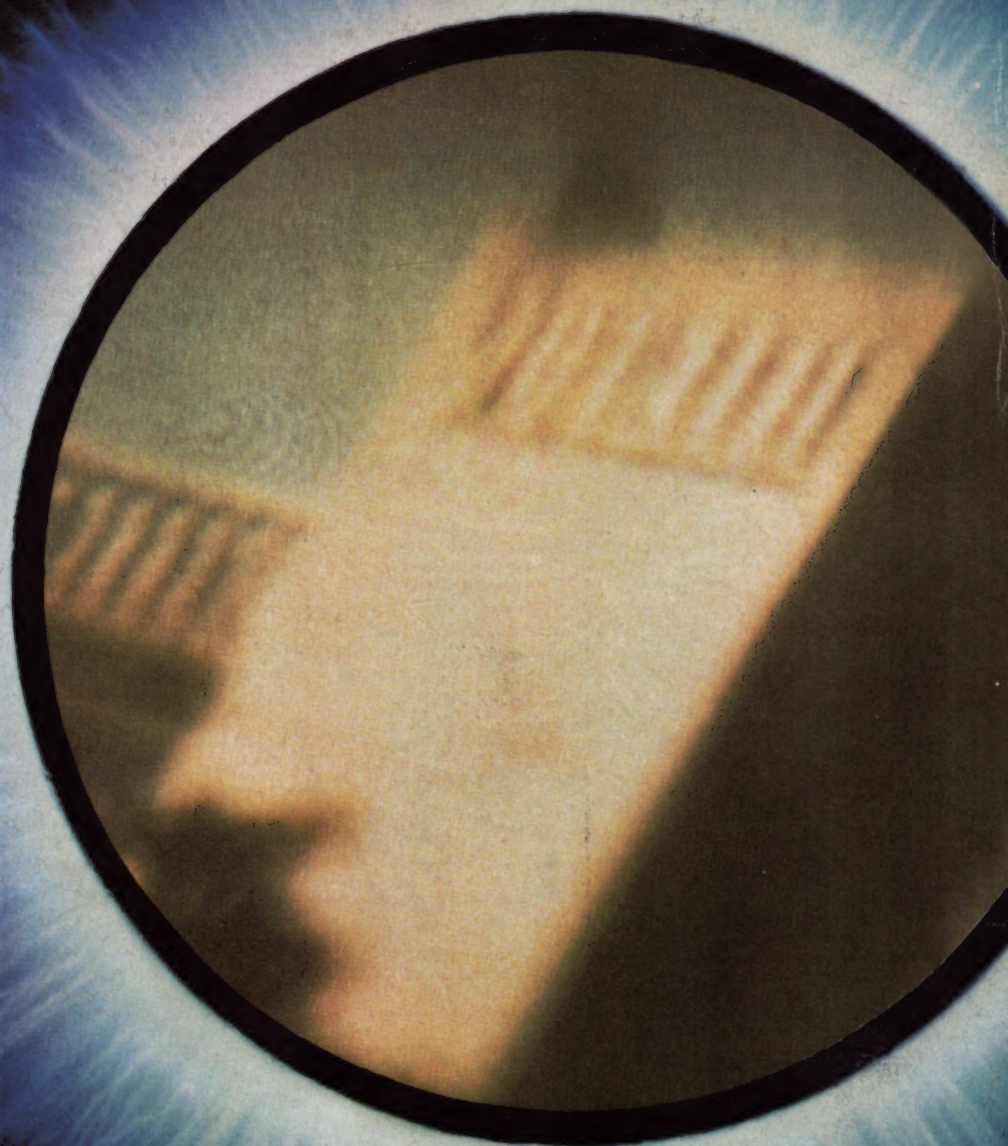
The impossible moon

Miraculous rose petals

A history of hysteria

Ted Series in focus

36



THE Unexplained

MYSTERIES OF MIND SPACE & TIME

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Moon mysteries reports on the strange lights and glows seen on the Moon by astronomers since 1787. In **Survival of death** we ask: is there any conclusive evidence for the existence of an afterlife? What is the force that takes over a group of people and, in effect, makes them break down? We suggest in **Mass hysteria** that many orthodox assumptions about this 'contagion' should be revised. Another **UFO Casebook** tells how two young Argentinians came face to face with aliens. The explanations for unidentified flying objects have been numerous and varied: and the first of a new series on **Man-made UFOs** presents a provocative look at the possibility that UFO witnesses have seen the clandestine aeronautical activities of their own governments.

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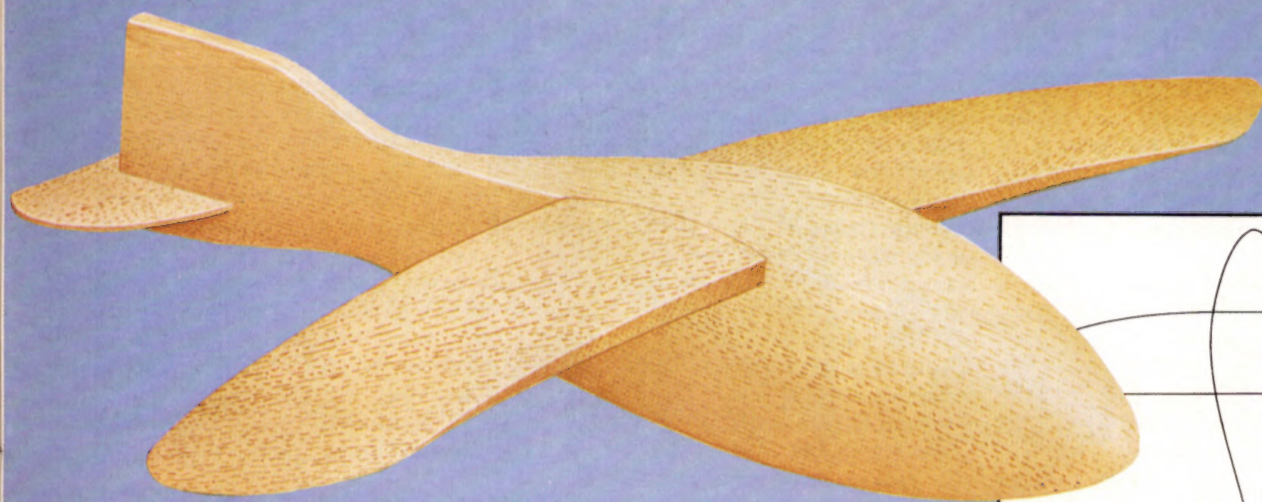
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A catalogue of curious finds

Was Alessandro Volta really the first person to think of the electric battery? Were the Wright brothers really the first to fly? Modern research suggests that our ancient ancestors may have had technologies far more advanced than we can imagine, as CHRIS COOPER explains

IN A MUSEUM IN CAIRO a small wooden model was on display. No one could mistake what it was: one glance showed the wings, fin, tailplane and deep, bulky body of some kind of aircraft. The body of the model was just under 6 inches (15 centimetres) long, and its wingspan was just over 7 inches (18 centimetres). Made of light sycamore wood, it would glide a short distance when thrown from the hand.

It would not have been a great surprise to see a model like this in a science museum. But this model had pride of place as an exhibit in Cairo's Museum of Antiquities – and it was dated around 200 BC.

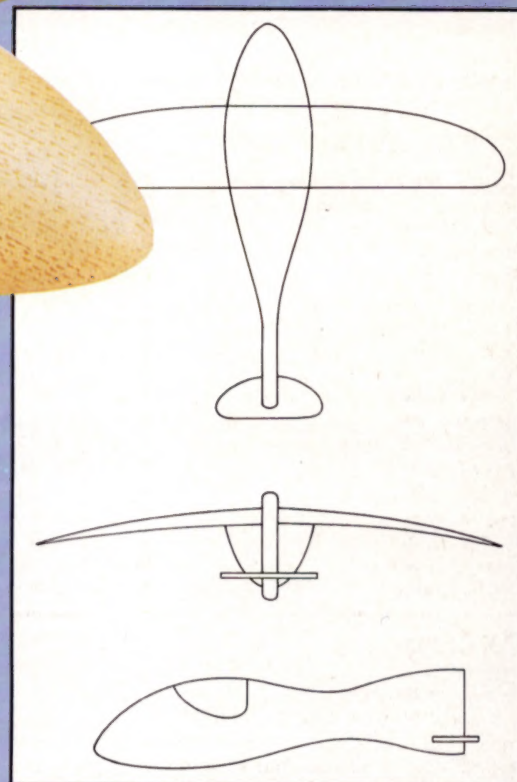
This ancient model is a glaring challenge to our ideas about the development of technology. And it is only one of innumerable oddities and enigmas that fuel speculation about the scientific knowledge and engineering skill of our ancestors.

No one had connected the model with the idea of artificial flight when it was found in 1898 – five years before the Wright brothers made their first successful powered flight – in a tomb in the ancient Egyptian city of Saqqara. It had been stored in a box with figurines of birds. It was not until 1969 that Dr Kahlil Messiha rediscovered it, and was astounded by its evident resemblance to a modern aircraft.

A committee of archaeological and aeronautical experts studied the model. They pointed out the cambering of its wings – the

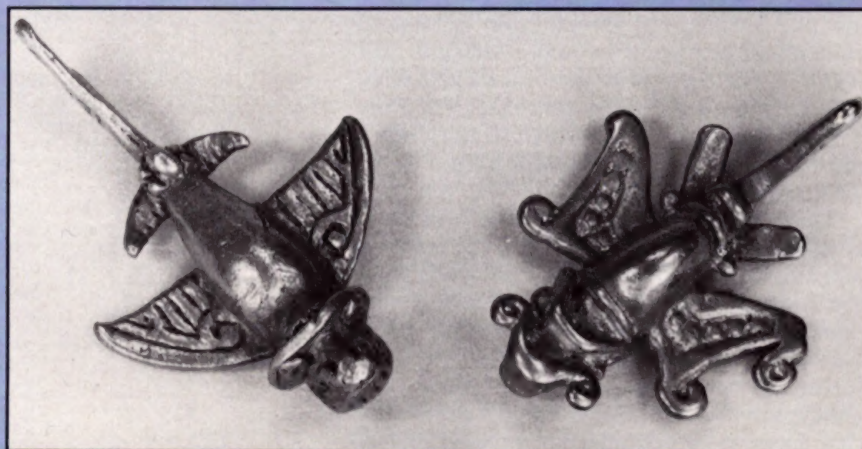
Above: this working model glider was made in Egypt around 200 BC. Some experts believe it is a model of a full-sized 'powered glider'; others, however, have pointed out that it could be a weather-vane

Below: gold ornaments from South America, made some time between AD 500 and 800. One of them (left) bears a striking resemblance to a modern delta-winged jet



curve of the upper surface, which generates lift – and the 'anhedral' or downward droop of its wingtips, which provides stability. They conjectured that the craft was a model of a full-sized aircraft. It would have been a 'powered glider', designed to carry heavy loads at very low speeds – probably less than 60 miles per hour (95 km/h). It could have been propelled by an engine mounted at the rear, at a point where the model's tail is now broken.

The committee was sufficiently convinced of the importance of their find to devote a special display to it in Cairo. The discovery prompted a fresh look at 'bird models' in other collections. Over a dozen similar 'gliders' were found in other tombs. Could



Ancient technology

they really be models of ancient aircraft?

The scepticism that most people feel towards the idea of ancient aeronauts – possibly as shocking as that of ancient astronauts – receives a blow when it emerges that aero-modellers were apparently at work on the other side of the world during the first millennium after Christ.

The supposed aircraft models that have come to light are a number of small gold ornaments that have been found in Colombia, Costa Rica, Venezuela and Peru. One example was spotted in a collection of ancient art objects from Colombia by Ivan T. Sanderson, head of the Society for the Investigation of the Unexplained in the United States. It was a pendant 2 inches (5 centimetres) long, intended to be worn on a necklace or bracelet. The Colombian archaeologists

One of the most impressive pieces of evidence for the highly advanced states of some early technologies is the so-called 'Baghdad battery' (below). It was made during the Parthian occupation of Iraq at some time between 250 BC and AD 224 – and, astonishingly, could have been made to generate electricity. A West German Egyptologist, Dr Arne Eggebricht (below left), has proved, using a model, that the battery could have been used for electroplating small figures with gold (bottom)

that seem to be organic in nature.

These objects *look* like jets – but how safe a guide is that? The symbol on the Colombian ornament's 'tail fin' resembles the Semitic 'beth', or letter B. Some writers have jumped to the conclusion that the aircraft shown came from the Middle East.

Over-enthusiastic interpretation may lead some people to regard *all* extravagant claims for ancient objects with suspicion, but it becomes necessary to pay serious attention when a *functioning* device from an 'impossible' date is discovered. The Saqqara glider is one example; an equally impressive one is the 'Baghdad battery'.

Externally, the battery is a clay pot, just under 6 inches (15 centimetres) tall. It is stoppered with bitumen, in which is mounted a copper cylinder that runs down about 4 inches (10 centimetres) inside the pot. The cylinder is made from strips of copper soldered together, and it is closed with a copper cap. Inside the cylinder is an iron rod that has been heavily corroded, apparently by acid. The pot was found in Baghdad, and apparently dates from some time during the Parthian domination of this part of Iraq, which lasted from 250 BC to AD 224.

Ancient electricity

When the archaeologist Wilhelm König came across this item in a museum in Iraq in 1937, he immediately saw how it could be used to generate an electric voltage. Experiments made with modern replicas some years later confirmed that it could have served this purpose. To generate a voltage, it would be necessary to pour a suitable liquid into the cylinder. A large variety of fluids could have been used, including acetic acid or citric acid (the main constituents of vinegar and lemon juice respectively), or copper sulphate solution. This arrangement will generate between $1\frac{1}{2}$ and 2 volts between the copper and the iron cylinder and the iron rod. If a series of such cells were linked (forming a 'battery' in the proper sense of the word), the available voltage could be increased substantially.

The most likely use for electricity among the Parthians would have been electroplating. The art of gilding figurines dated back centuries before then. The battery could have been used to apply a voltage between a metal statuette and an ingot of gold while both were immersed in an electrolyte. Gold would have been transferred through the liquid to be deposited as a thin film on the figure's surface.

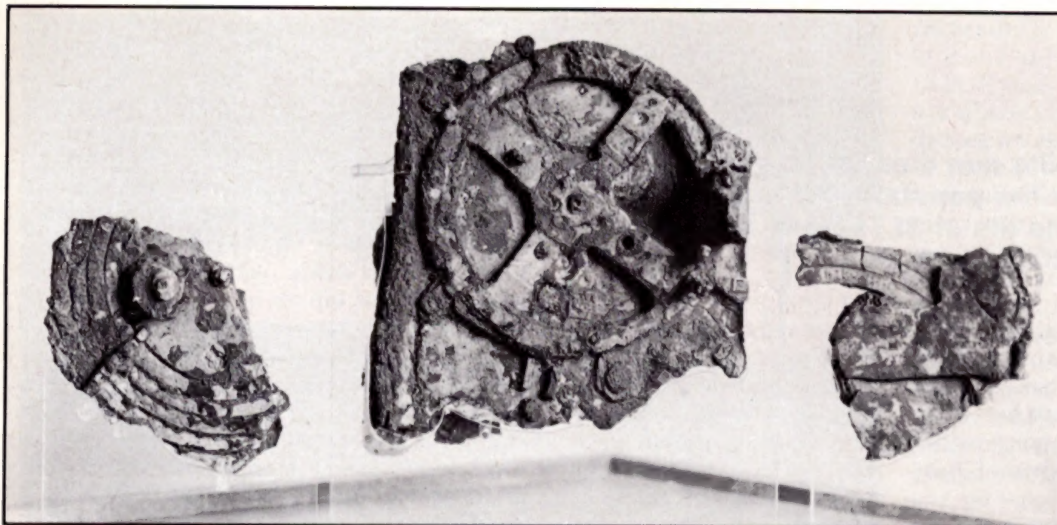
Similar clay pots have been found at other sites near Baghdad. They are a salutary reminder that our conceptions of mankind's historical development are often based as much on ignorance as on knowledge.

The ability to generate electrical current could have been hit on as an isolated discovery. Static electricity was known to the ancients: they knew that when amber (in Greek, *elektron*) was rubbed, it would attract



had classified it as 'zoöomorphic', or animal-shaped. But it looks much more like a delta-winged jet fighter than like any animal or bird. It has triangular appendages that look just like the wings of several types of modern supersonic aeroplane, a small straight tail-plane, a tail fin – and there are even what appear to be insignia on one side of the fin. Yet the ornament is attributed to the Sinu, a pre-Incan society that flourished from about AD 500 to AD 800.

Being so very small, and made of solid gold, the model does not fly, but the resemblance to certain advanced aircraft built since the Second World War is remarkable. Aeronautical experts and biologists have compared these ancient ornaments with the forms of bats, sting rays and birds, and concluded that, in many of them, the features that seem to be artificial far outweigh those



light objects such as dust and hairs. The technique of generating electrical current – which is electric charge in motion – could have been an equally haphazard, isolated discovery. Neither finding seemed to lead to further technological development or insight into the causes of the phenomena, although some enthusiasts have claimed that the Parthians – and, before them, the ancient Egyptians – used electric light.

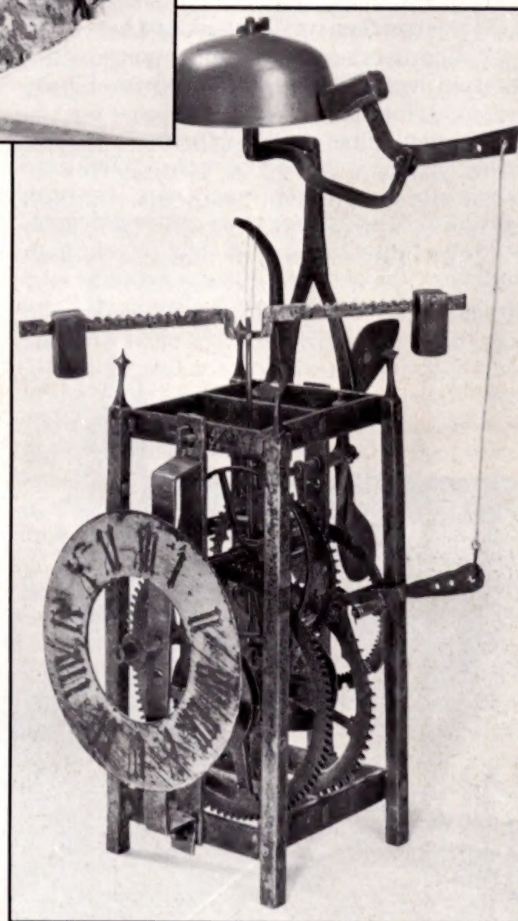
There are, however, enough soberly accredited anomalies of technology from the past to keep us well aware that some of our ancestors did develop their technology – to astonishingly high levels.

In 1900, sponge divers found the wreck of a treasure ship, almost 2000 years old, off the Greek island of Antikythera. It was laden with bronze and marble statues, and may have been voyaging to Rome when it went down in about 65 BC. In its cargo was found a mass of wood and bronze, the metal so badly corroded that it could only just be made out as the remains of gearwheels and engraved scales. It was not until 1954 that Derek J. de Solla Price of Cambridge University was finally able to deduce that here was an ancient analogue computing device, far ahead of anything that was to be seen in Europe again for hundreds of years. In fact the mechanism, when new, 'must have borne a remarkable resemblance to a good modern mechanical clock.'

The device consisted of at least 20 gearwheels, supported on a number of bronze plates, the whole mounted in a wooden box. When a shaft that passed through the side of the box was turned, the pointers moved at different speeds over dials, which were protected by doors. The inscriptions explained how to operate the machine and how to read the dials.

The device was a working model of the celestial bodies – Sun, Moon, and the planets that can be seen with the naked eye, Mercury, Venus, Mars, Jupiter and Saturn. Their relative positions in the sky were shown with great accuracy. The time of day

Among the treasures recovered in 1900 from a ship wrecked almost 2000 years ago off the Greek island of Antikythera was a confused mass of wood and bronze (above), so badly corroded that it was almost impossible to make out what it was. It was not until 1954 that a Cambridge scholar realised its true significance – the object consisted of more than 20 gearwheels mounted on a wooden box, and constituted a working model of the movement of the celestial bodies. Nothing so complex would be seen again until the clocks of the Renaissance, such as this one, made in Germany in the 15th century (right)



was also indicated by the pointers.

In Price's words, 'Nothing like this instrument is preserved elsewhere. Nothing comparable to it is known from any scientific text or literary allusion.' He goes on to say that 'it seems likely that the Antikythera tradition was part of a large corpus of knowledge that has since been lost to us but was known to the Arabs.' For mechanical calendar devices were made by them centuries later, and inspired the clock makers of medieval Europe.

But what else might such a body of knowledge have contained? What forces, benevolent or malevolent, might the ancients have commanded – that did *not* stay alive in the memory of their descendants?

Could ancient engineers have been active before the coming of Man? See page 754

A shower of roses

When an obscure Carmelite nun died at the age of 24 in 1897 no one could foresee her popularity as a saint.

PIERS CROKE describes the life of St Thérèse of Lisieux – and the miracles associated with her

AS ZÉLIE GUÉRIN WAS CROSSING the bridge over the river Sarthe at Alençon in northern France one blustery day in October 1858, she saw a strange man walking towards her – and, according to her own account, a voice within her told her, 'This is he for whom I have prepared you.'

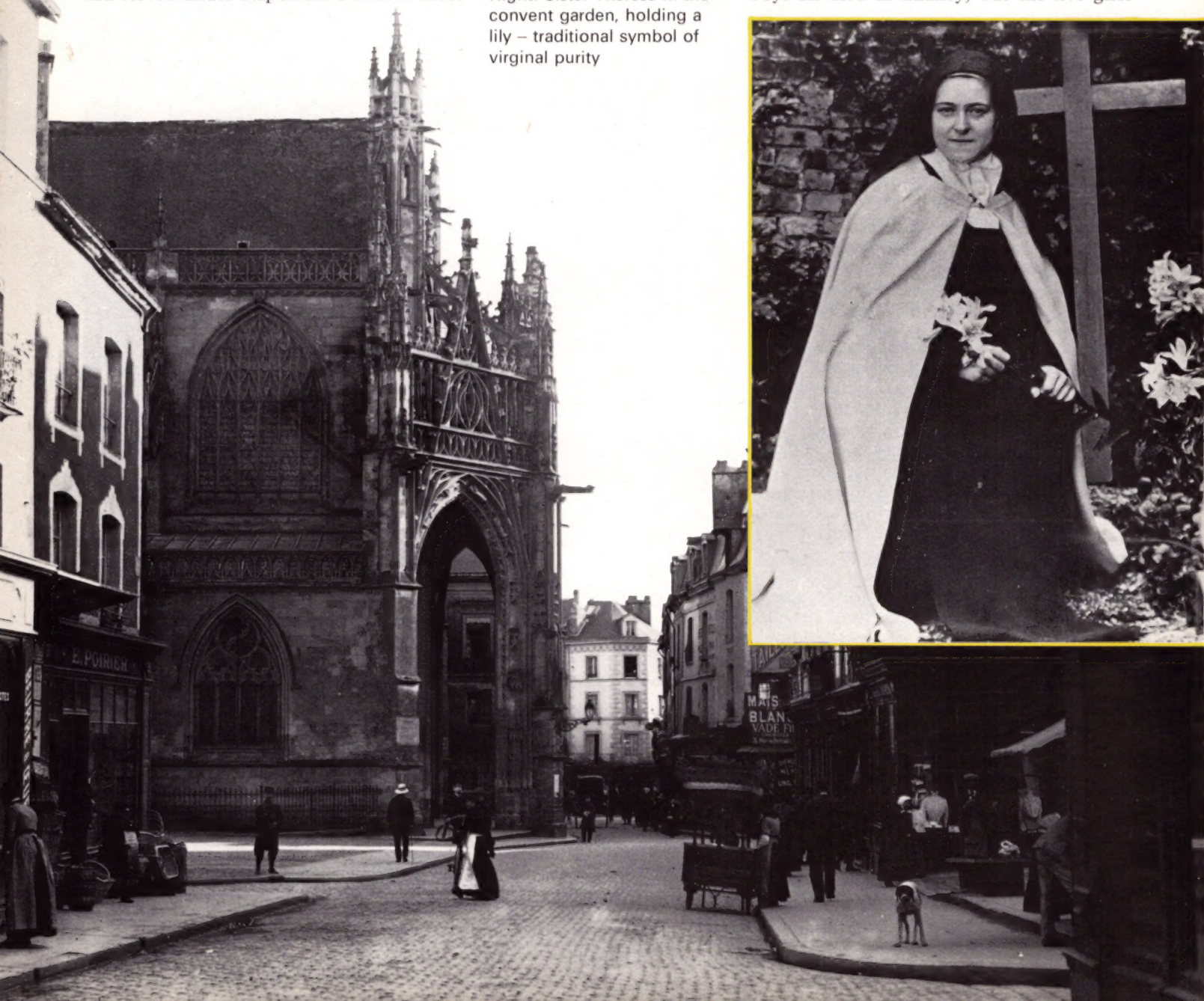
His name was Louis Martin, a watchmaker in the town. The couple fell into conversation, an exceptional event, for both were modest and pious to an unusual degree, and found they had a great deal in common. Both were the children of army captains who had served under Napoleon. But even more

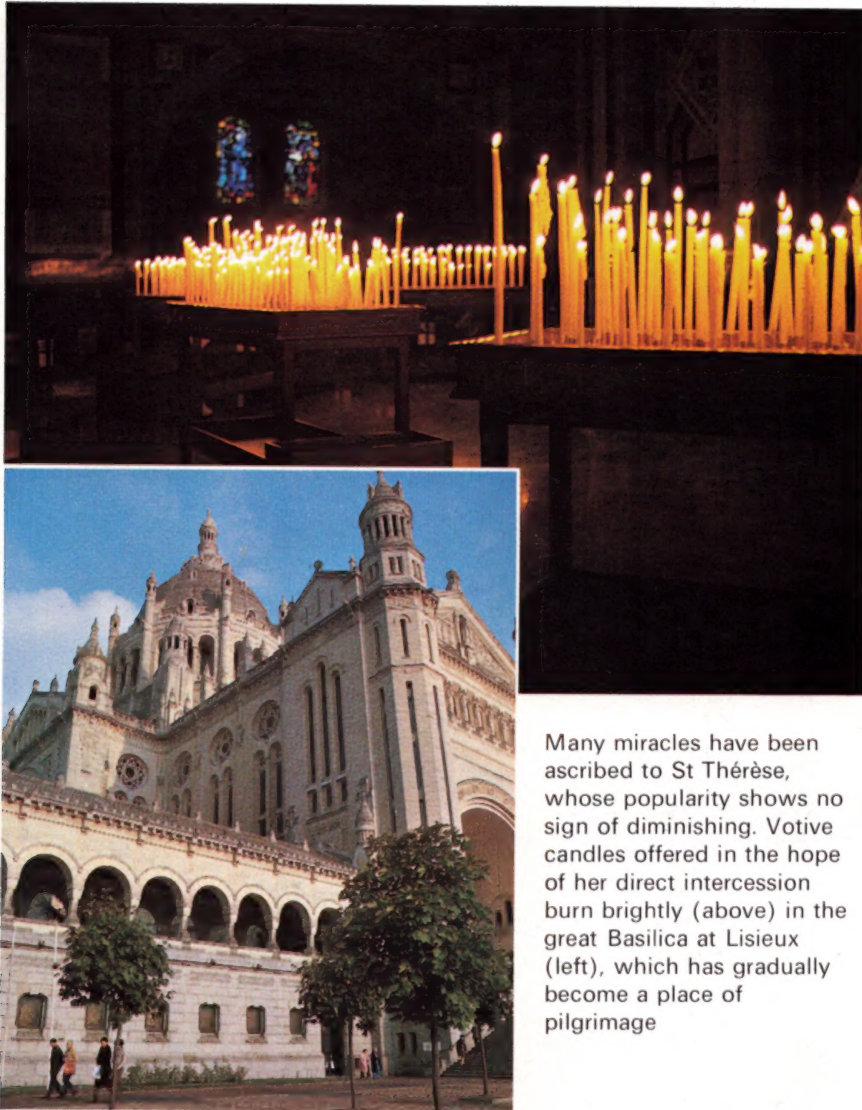
Below: the main street of Alençon in northern France as it was in the late 19th century. It was here that Zélie Guérin and Louis Martin were first drawn to each other, apparently by the hand of God. They married and had a large family; all the boys died in infancy and all the girls became nuns – among them the future saint

Right: Sister Thérèse in the convent garden, holding a lily – traditional symbol of virginal purity

remarkably, both had at one time felt religious vocations, but had been frustrated in achieving them. Zélie had sought admission to the Sisters of St Vincent de Paul, and had been turned down without explanation. Louis's earnest efforts to become a monk at the Grand St Bernard Abbey had come to nothing when he was unable to gain a sufficient mastery of Latin.

Within three months, the couple were married. By their own choice, it was a marriage of perfect monastic chastity. For 10 months, they lived happily as brother and sister, until Louis's father confessor, no doubt feeling that such a state was unnatural, advised them that it was God's will that they should have children. Louis and Zélie took him at his word, and over the next 14 years they produced five girls and four boys. The boys all died in infancy, but the five girls





Many miracles have been ascribed to St Thérèse, whose popularity shows no sign of diminishing. Votive candles offered in the hope of her direct intercession burn brightly (above) in the great Basilica at Lisieux (left), which has gradually become a place of pilgrimage

survived to succeed where their parents had failed in entering monastic life. And the youngest of them, Thérèse, was canonised a saint of the Roman Catholic Church in 1925, a mere 28 years after her death.

Zélie died from breast cancer when Thérèse was four years old, but the little girl's childhood in the old stone-built town of Alençon was nevertheless unusually happy. Her father called her *ma petite reine* ('my little queen') and would deny her nothing – to the extent that a less exceptional child might have been spoiled. This point did, indeed, later occur to the Promoter of the Faith appointed by the Pope to investigate the case for Thérèse's canonisation. But he found no evidence to suggest that she was other than a delightful and lovable child.

Not surprisingly, given the pious environment in which she grew up, she was a devout Catholic from her earliest years. She was later to write in her autobiography, *Histoire d'une âme*, that 'from the age of three I denied God nothing.'

The Promoter of the Faith did, however, find one fault in her character: a marked obstinacy of spirit – which was said to be

successfully curbed except when Thérèse believed she was prompted by the will of God. It was in this way that she was to justify a dramatic breach of etiquette she committed during an audience with the Pope in 1887.

In that year, the Bishops of Normandy sponsored a public pilgrimage to Rome – a rare event. Thérèse, by now 14 years of age, had a particular reason for wishing to join it. Her three elder sisters had already become nuns and it was her fervent desire to follow them within the next year. Not unreasonably, the ecclesiastical authorities rejected her request to become a novice on the grounds of her extreme youth. For Thérèse, however, this was merely a bureaucratic obstacle in the path to which God had called her, and she determined to seize the chance to make a direct appeal to the Pope, Leo XIII. To the alarm of the clerics in charge of the pilgrims, she made no secret of her intentions. The priests told her firmly to hold her tongue, an order that was reinforced in the very ante-chamber of the Papal audience hall. Nevertheless, when her turn came to kiss the Holy Father's extended hand, she grasped it and tried to present her case. Two of the Pope's helmeted Swiss Guards at once stepped forward to remove her. But, recovering from his astonishment, the Pontiff allowed her to continue, although his answer to her request was diplomatic: 'Well, you will enter the convent if it is God's will . . .'

Silence and scourges

So, astonishingly – and against all precedent – the authorities in France relented and Thérèse was received into the Carmelite Convent in Lisieux the following year. The regime of the order was harsh even by the standards of the day. The nuns ate no meat, and from September to Easter took only one meal a day. From rising at 4 a.m. till rest at 10 p.m., most of the time was spent in complete silence. In addition, each nun was required to scourge her naked body several times a week with a *disciplina*, a sort of cat-o'-nine tails made of knotted leather thongs.

Thérèse accepted the daily suffering humbly and thankfully for the glory of God. Discussing the use of the scourge, her younger sister Céline confessed to her that she 'stiffened involuntarily in an effort to suffer less.' Thérèse expressed surprise: 'I whip myself in order to feel pain, as I want to suffer as much as possible. When the tears come into my eyes, I endeavour always to smile.' Later, however, she came to reject the use of instruments of mortification, emphasising instead the importance of complete obedience to God in every aspect of life.

Thérèse's devoutness and cheerfulness were exemplary, and remarked by everyone who knew her. In recognition of these qualities, she was entrusted, at the age of 23, with the care and training of novices. Then, one morning, she suffered a severe haemorrhage. The privations of her life had taken

The making of a saint

The process leading to the canonisation of Roman Catholic saints is a lengthy and rigorous one. The bishop of the diocese in which the candidate lived holds an enquiry and sends the results to Rome. Here, the case is put into the hands of a committee known as the Congregation for the Causes of Saints. The Congregation appoints two men to examine the case further: the Postulator of the Cause, who argues for the case, and the Promotor of the Faith – commonly known as the Devil's Advocate – who searches out reasons why the candidate should not be canonised.

The life and claims to holiness of the candidate are now examined; in the case of non-martyrs, two well-attested mirac-

les are required for the initial step of beatification, which takes place before canonisation. A five-man committee is appointed by the Congregation to examine the case in greater detail; if it is successful, it goes back to the Congregation for discussion at three consecutive meetings. The Pope himself attends a final meeting and if, after 'prayerful consideration', he supports the cause, yet another meeting is held. The Pope can now declare the candidate blessed.

The final step in the process takes place if a further two or more well-authenticated miracles are proved to have taken place through the intercession of the person declared blessed. These are discussed at three meetings of the Congregation; a final meeting is held, and the Pope issues a document known as a *Bull of Council*, in which he states that the new saint is worthy of honour and imitation by the whole Church.

Below: Thérèse aged 15 with her widower father, just before she became the youngest nun in the Carmelite convent at Lisieux. M. Martin adored Thérèse, but her ardent sense of vocation convinced him that he should allow her to become a nun

Bottom: a statue of the dead saint in the Basilica at Lisieux

Right: Thérèse lies dying in 1897. The privations of her religious life took their toll, but she 'offered up her sufferings to God' and pledged to return from heaven to help the faithful. She said that her death was only the beginning of her 'real work'

their toll. Tuberculosis was diagnosed, and she was given a year to live.

Towards the end, in 1897, she remarked to one of the nuns who tended her, 'I have never given God anything but love and is it with love that I will repay. After my death I will let fall a shower of roses. Now I am in chains like Joan of Arc in prison, but free soon, then will be the time of my conquests.'

The infirmiry sister, no doubt thinking to humour her, replied, 'You will look down from heaven.' 'No,' answered Thérèse vehemently, 'I will come down.'

On her deathbed she was brought roses. Deliberately removing the petals one by one, she touched them to a crucifix beside her bed. A few fell to the ground, and seeing this she cried earnestly, 'Gather them carefully! One day they will give pleasure to other people. Don't lose a single one of them.'

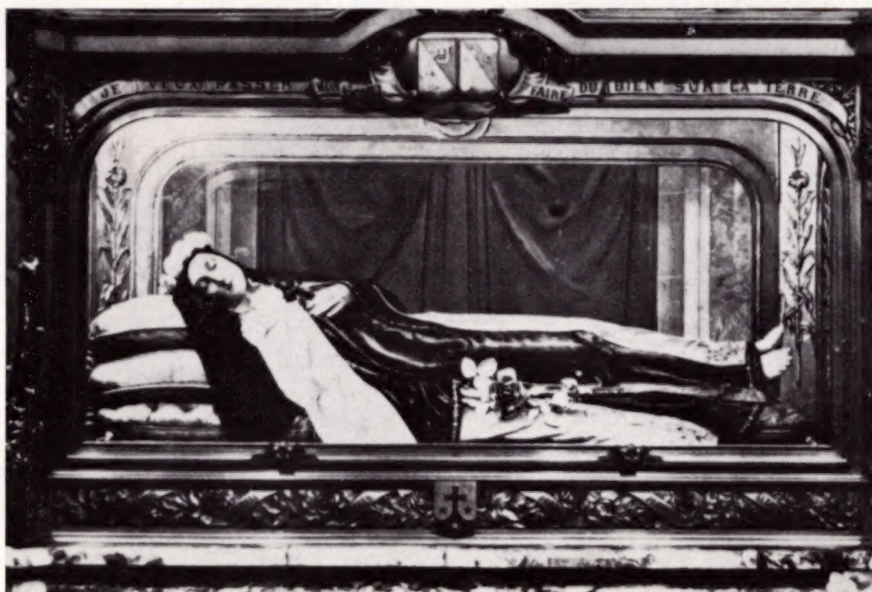
The final death agony was a long one. For hours Thérèse fought for breath, her hands and face turning purple, her mattress becoming soaked with sweat. To add to her pain, the doctor's prescription of morphia was denied her by an eccentric and tyrannical Mother Superior.

Many Roman Catholics believe that Thérèse's sufferings were not in vain. After her death there occurred a remarkable series of phenomena – miracles? – many of them connected with the rose whose petals she plucked when she was dying. Whether or not the rose is responsible, as some people think, these events defy rational explanation.

Take the case of Ferdinand Aubry. A man of 60, he was admitted in 1910 to the hospital of the Little Sisters of the Poor in Lisieux for treatment of ulcers of the tongue. His condition deteriorated rapidly, and gangrene set in, causing the tongue to split and then fall apart. Medical opinion gave the man only a

few days to live. In desperation, the Sisters begged one of Thérèse's rose petals from the nearby Carmelite convent. Ferdinand was induced to swallow it. The following day, he was cured. His tongue, however, was so badly damaged that it took the nuns some minutes to interpret his first attempts at speech to mean, 'When will my tongue come back?' Sadly, they shook their heads. But three weeks later, as contemporary photographs attest, Ferdinand's tongue was restored, whole and entire.

A year earlier, a Scotswoman, Mrs Dorans, had been admitted to a Glasgow hospital with an abdominal tumour. Having taken no food for 10 weeks, she was failing fast. Her doctor, indeed, gave her just days to live. Then prayers were offered to Thérèse for her recovery by the local Catholic community. On the night when doctors expected



her to die, Mrs Dorans felt 'a light touch on her shoulder', although there was no one in the room apart from her sleeping daughter. She fell asleep herself – to wake at 5.30 a.m., demanding tea and rolls. Later, doctors who examined her discovered that the tumour had regressed spontaneously, leaving a harmless lump the size of a marble.

A gardener's wife, Madame Jouanne, was rushed to a Paris hospital with peritonitis in 1912. She was operated on immediately, but so much pus was found when her stomach was opened up that she was immediately sewn up and simply left to die. But the priest who came to give her the last rites slipped a little silk purse containing one of the miraculous rose petals under her pillow. It seemed to succeed where medicine had failed, for Madame Jouanne made an instant recovery. She left hospital a week later and lived for many years afterwards.

A worldwide conspiracy?

Comparable stories of the intercession of Thérèse have subsequently been gathered from Austria, Belgium, Spain, Switzerland, Italy, Africa, the United States, Canada and China. The authenticity of many of the cases is unquestionable – unless, as one writer put it, one is 'prepared to believe in a worldwide conspiracy of priests, nuns, doctors and men and women of every rank and condition'.

A mere 20 years after her death, the Church acceded to the tumultuous clamour that Thérèse be officially venerated as a saint, and the process of investigating her case began. Contrary to popular opinion, this process is, in modern times, a rigorous one. At least four miraculous cases must be proved to the satisfaction of a panel of medical specialists. We have space to put forward just two of the cases. Sister Louise de St Germain was considered to be dying of a stomach ulcer. On the night of 10 September 1915, she dreamt that Thérèse appeared to her and promised her recovery. When she woke next morning, her bed was surrounded by rose petals – and no one could

explain how they got there. Her condition, however, grew worse until the morning of 25 September, when she awoke to find herself completely recovered. Her cure is certified by a series of x-ray photographs.

Charles Anne was studying for the priesthood at Bayeux when, in 1906, he contracted tuberculosis. It had spread to both lungs, and he had had a number of severe haemorrhages. The case being pronounced beyond the scope of earthly medicine, he was persuaded to wear around his neck a silk purse containing some of the saint's hair. He tells of his forthright prayer to Thérèse: 'I did not come to this seminary to die: I came to serve God. You *must* cure me.'

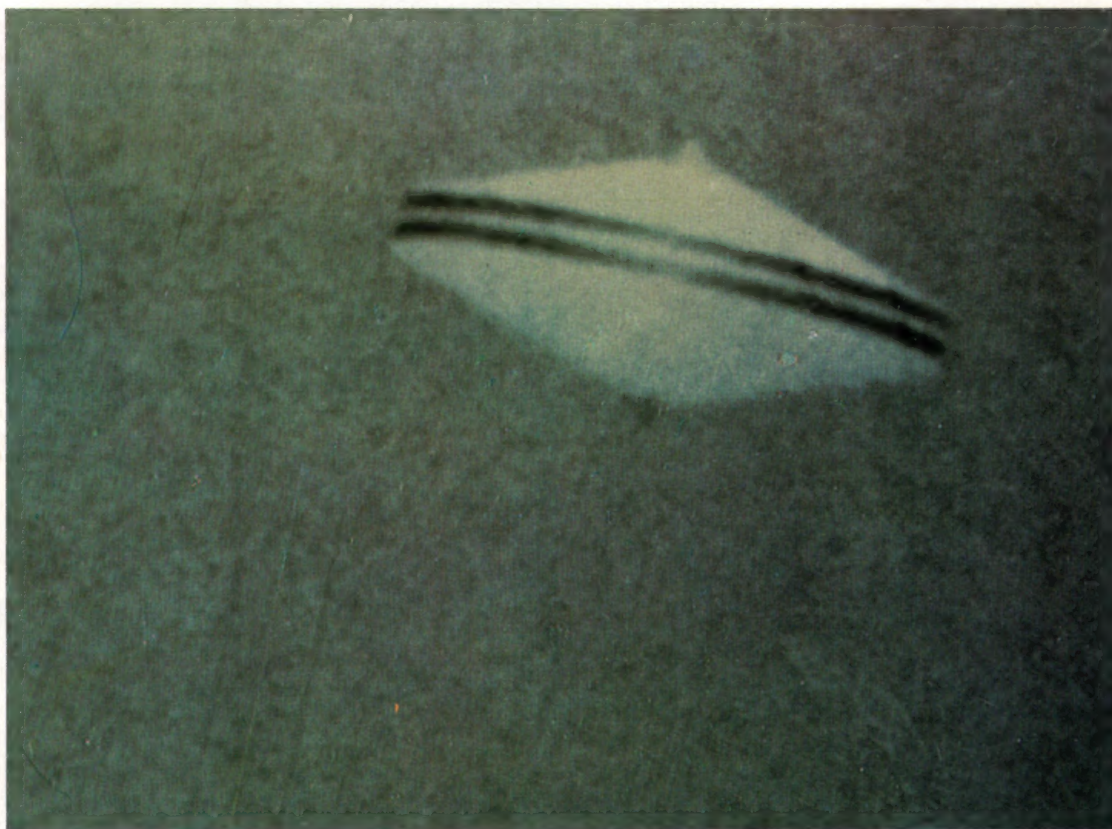
The next morning, his prayer was answered. He was cured from that day on. The doctor in attendance affirmed the cure to be 'absolutely extraordinary and inexplicable from a scientific point of view'.

What distinguishes the miracles associated with Thérèse from those of many other saints of the Roman Catholic Church is that they occurred in our time and have been submitted to scientific scrutiny. Pope Pius XI and his cardinals needed little time to assess the evidence presented to them by their expert panel. In each of the cases examined, the evidence cited was incontrovertible. Let us end with the words used in the Apostolic Decree proclaiming the sanctity of Thérèse of Lisieux: 'Each instance involved the healing of an organic malady, one produced by pathological and anatomical lesion rigorously determined . . . such that the forces of nature . . . could not heal.'





Above: 'long object with hump on back' photographed over Bear Mountain in New York State by an anonymous witness on 18 December 1966. The sighting was reported to the us Air Force's Project Blue Book who took possession of the two photographs and a negative and interviewed the witness exhaustively. Although their own technicians could find no evidence of fraud the file was nevertheless labelled 'Hoax'. Doctor J. Allen Hynek wrote to Major Hector Quintanilla (then Chief of Project Blue Book) saying: '... the lack of satisfactory explanation of the unidentified object does not constitute sufficient reason to declare [it] a hoax. ... My recommendation is ... that the evaluation be changed from hoax to unidentified.' Despite this recommendation the 'Hoax' label remained. Why did the Air Force want to discredit the witness?



Below and below left: two frames from a film said to be of 'an approaching ufo', taken by Daniel W. Fry during May 1964 near his home in Merlin, Oregon, using a Bell and Howell movie camera. The ufo, described by Fry as 'spinning like a top during flight', was by no means the first he claimed to have encountered. It was, according to him, in 1950 that he witnessed his first 'saucer' landing, and during the next four years he became a contactee of 'the Space People'. They allegedly told him that they are the descendants of a lost super-race from Earth who survived a nuclear holocaust over 30,000 years ago and fled to live on Mars. Later they abandoned Mars and now live exclusively in their spacecraft. Fry is said to have taken a lie detector test on live television about his alleged contactee experiences and 'flunked it flat'.



Above right and right: another 'Martian spacecraft' photographed by Daniel W. Fry, also using a 16-millimetre Bell and Howell movie camera. The time is May 1965 and the place Joshua Tree, California. This craft is also described as 'spinning like a top' in the sky. Fry, an ex-employee of the Aerojet General Corporation (where he was 'in charge of installation of instruments for missile control and guidance'), is considered to be the most technically orientated of modern contactees. Sceptics may point out, however, that his uniquely technical background might provide him with opportunities to produce fake photographs of a high standard, but there is no conclusive evidence that these are fakes.



Ted Serios in focus

Can thoughts really be photographed? Chicago bell-hop Ted Serios believes they can, and has produced hundreds of pictures as proof. ROY STEMMAN considers the claims made by, and for, this psychic photographer – and examines the sceptics' attempts to expose him

TED SERIOS SAT DOWN in the hotel room and pointed a Polaroid camera at his face. The flashbulb fired and Dr Jule Eisenbud immediately took the camera from him and pulled the print from the back. Instead of showing Serios's face the unmistakable image of a building appeared.

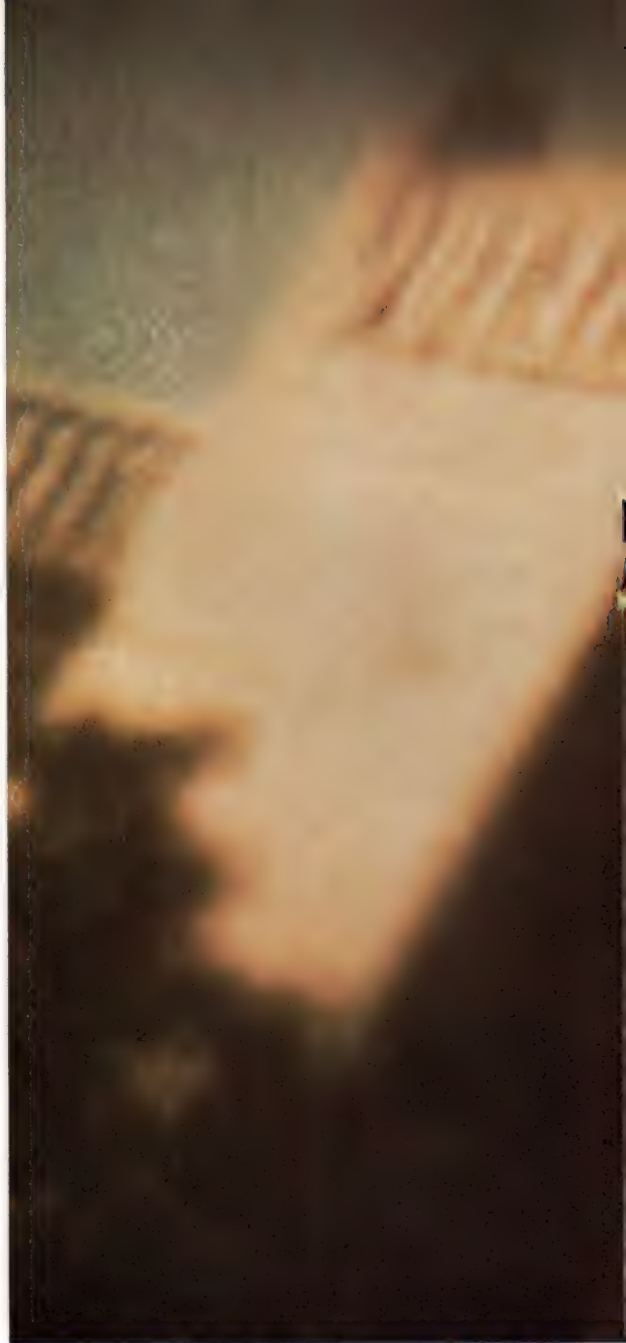
For Serios, a chain-smoking, alcoholic Chicago bell-hop, it was just another of his strange psychic photographs that he calls 'thoughtographs'. But for Dr Eisenbud, an associate professor of psychiatry at the University of Colorado Medical School, it was such an impressive demonstration of paranormal power that he went on to study Serios for several years and write a book about him.

When he flew to Chicago for the first experimental session with the hard-drinking psychic photographer in April 1964, Eisenbud was almost certain that he was about to witness 'some kind of shoddy hoax'. Because of his interest in the paranormal, Eisenbud was aware that there had been many so-called psychic photographers over the years who had been caught cheating, usually by tampering with the film. The appearance of the Polaroid camera had changed that, making it easier to control the production of such 'thoughtographic' prints as well as giving results in seconds.

Investigators who have worked with Serios supply their own film and cameras;

Right: one of the few colour 'thoughtographs' produced by Serios. He was aiming at a target picture of the Hilton hotel at Denver, but obtained this image of the Chicago Hilton instead

Below: the first picture of a 'recognisable structure' that Serios produced for researcher Dr Jule Eisenbud. It was immediately identified by one of the observers at the session as the Chicago Water Tower (below right)





Above: one of eleven views of a shop front in Central City, Colorado, produced by Serios (left) in 1965. At that time the building was used as a tourist shop called the 'Old Wells Fargo Express Office', but several years before it was 'The Old Gold Store', no photographs of which were known to exist. In one of the pictures (top), the billing reads 'The Wld Gold Store': to create this effect fraudulently, Serios would have had to use two transparencies

sometimes they even take the pictures themselves, with the camera pointing at the Chicago psychic – and yet, the results that emerge are frequently very strange indeed. Not all the photographs carry images; some are unusually white while others are totally and inexplicably black, even though the room-lighting and other factors remain constant. Occasionally, the image that emerges from the Polaroid covers the whole area of the print while at other times it obliterates only a portion of Serios or identifiable items in the room where the experiment is being conducted.

Can Serios really impress his thoughts on photographs? It is so unlikely that the possibility of a cunning fraud has to be looked at

from the start, and sceptics do not need to look very far to have their suspicions aroused. In his early days, Serios just looked at the camera to produce his startling pictures, but later he introduced a 'gismo', which he holds in front of the lens while concentrating. Sometimes he uses a small plastic cylinder, one end of which is covered with plain cellophane, the other with cellophane over a piece of blackened film; on other occasions he simply rolls up a piece of paper.

The purpose of the 'gismo', says Serios, is to keep his fingers from obscuring the lens. His critics, however, see it as having a far more sinister purpose. It could very easily conceal a 'gimmick' containing microfilm or transparency, they argue, and for them it is as suspicious as a conjuror's hat.

Two reporters, Charles Reynolds and David Eisendrath, constructed a small device that could be hidden in a 'gismo' and that produced similar-looking results to those of Serios. Their account, published in *Popular Photography* in October 1967, gave the sceptics the 'evidence' they needed.

Secrets of the 'gismo'

Eisenbud and other researchers, on the other hand, are satisfied that the 'gismo' contains no hidden equipment, nor does Serios slip anything inside it just before an exposure is made. They are all aware of the hidden microfilm hypothesis and have evolved an experimental protocol to overcome it. Serios is usually given the 'gismo' when he feels he can produce a paranormal print. It is then taken from him immediately and examined. It is probably in his hands for no longer than 15 seconds at a time and throughout that period it is under close scrutiny.

Serios usually wears short-sleeved shirts or strips to the waist, making it impossible for him to conceal anything close to his hands. Besides, say the researchers, they are frequently close enough to the action when Serios tells them to fire the camera that they can actually see through the 'gismo' and *know* that it contains no hidden devices.

On numerous occasions images appeared when someone else was holding the 'gismo' and the camera, and able to examine both freely. Two eminent American psychological researchers, Dr J. G. Pratt and Dr Ian Stevenson, who conducted numerous tests with Serios, have stated: 'We have ourselves observed Ted in approximately 800 trials and we have never seen him act in a suspicious way in the handling of the gismo before or after a trial.' Quite apart from the fact that Serios has never been caught with any hidden transparencies or microfilm, Dr Eisenbud argues that the very nature of the images that Serios produces rules out the 'gimmick' theory.

Serios invited investigators to bring with them target pictures concealed in envelopes, which he tried to reproduce on Polaroid film paranormally. On the first occasion that



change, says Eisenbud, must have occurred no later than 1958 and possibly earlier, and research has failed to unearth any photographs of the store in its earlier days.

But, although Serios's paranormal picture corresponds perfectly (but for the name) with the present-day store, there is a curious substitution in one picture of the letter 'W' for 'O' so that it reads 'The Wld Gold Store'. And the 'W' is exactly where it would be if 'Wells Fargo' had been spelled out.

Something similar happened with a picture that showed two storeys of a building and some slightly out-of-focus lettering that was, nevertheless, discernible. The building was ultimately acknowledged by the Royal Canadian Mounted Police as one of their Air Division hangars, but they pointed out a curious misspelling, which other observers had also noted. The words in Serios's picture read 'Air Division *Cainadain* Moun—'.

If Serios were somehow using concealed transparencies to produce his pictures then he was also having to tamper with the

Eisenbud saw Serios produce a paranormal picture, in a Chicago hotel room, the psychiatrist had taken with him two views of the Kremlin buildings, each hidden in a cardboard-backed manila envelope.

One of the images that Serios produced at this session was of a tall, thin building, which one of the witnesses immediately identified as the Chicago Water Tower – a landmark that would have been familiar to Serios. Though this seemed to be totally off target, Eisenbud was very impressed, partly because some of the images and symbols in the picture were relevant to a line of thought that was in his mind at the time.

Two years later, however, Eisenbud came across another view of the Kremlin buildings and this time Ivan's Bell Tower, which was only partly visible in one of the two target pictures, was prominent. It was only then that he realised that it has 'an easily discernible resemblance' to the Chicago Water Tower. Serios, it seems, scored a hit after all.

But stranger things have happened. In May 1965 Serios produced 11 slightly different versions of what appeared to be a plate glass store front. On two of them the name 'The Old Gold Store' is clearly visible in bold block lettering. Two years later the place was recognised as a tourist shop in Central City, Colorado, which is now the 'Old Wells Fargo Express Office'. The name



Top: the blurred lettering on this 'thoughtograph' enabled researchers to identify the building as a hangar belonging to the Air Division of the Royal Canadian Mounted Police (above). The picture bears the unmistakable stamp of Ted Serios in the misspelling 'CAINADAIN'

originals in an expert way to come up with such bizarre images. Another very clear picture showed Williams's Livery Stable, across the street from the Opera House in Central City. But there were strange distortions. The brickwork had changed: in Serios's picture it was like imbedded rock whereas the building is in fact constructed of pressed brick. Also, the windows in the paranormal print were bricked up.

Because of such pictures, in which Serios seems to be photographing the past (and distorting reality, too), Eisenbud and some fellow researchers arranged an experimental session on 27 May 1967 at the Denver Museum of Natural History where, surrounded by neolithic and paleolithic artefacts, it was hoped his powers might capture on film something that was several thousand years old.

Serios felt confident of success and began by drawing a mental impression he had received of a man lighting a fire. Strange images were recorded on several of the

Hidden in the hand?

James Randi, professional stage magician and debunker of things paranormal, is convinced that Ted Serios is a fraud and that his so-called 'thoughtographs' are produced not by the power of his mind but by the device Serios calls a 'gismo'.

A 'typical Serios gimmick', described by Randi in his book *Flim-flam! – the truth about unicorns, parapsychology and other delusions*, consists of a small magnifying lens, about $\frac{1}{2}$ inch (1.2 centimetres) in diameter and with a focal length of about $1\frac{1}{2}$ inches (4 centimetres), fixed to one end of a cylinder about $1\frac{1}{2}$ inches (4 centimetres) long. A circle cut from a colour transparency (a 35-millimetre slide, for example) is glued to the other end of the cylinder. To avoid detection,



the device can be wrapped loosely in a tube of paper.

By holding the 'gismo' – lens end towards the palm – close to the lens of a Polaroid camera focused to infinity, and snapping the shutter, the image on the transparency will be thrown onto the Polaroid film. After use, Randi explains, the 'gismo' will slide easily out of the paper (to be disposed of secretly later) and the empty paper tube can be offered for inspection.

It is possible to take photographs in this way, although the pictures that result will usually be of poor quality, just as those 'taken' by Serios were. However, showing how the images *could* have been produced is very different from using such an optical device undetected in hundreds of demonstrations. And neither Randi nor any other of Ted Serios's critics has done that.

pictures, the most impressive of which shows a Neanderthal man in a crouching position. But Serios's camera lens had *not* delved into time to record this image. It was realised immediately by one witness, Professor H. Marie Wormington, of the Department of Anthropology, Colorado College, that it resembled very closely a well-known life-size model of a Neanderthal man group in the Chicago Field Museum of Natural History, postcards of which were readily available.

The final curtain

So, was Serios faking the photographs? Subsequent studies show that the man in Serios's pictures is shown at different angles and in the opinion of several professional photographers and photogrammetric engineers, these paranormal prints 'could not have been produced from a single microtransparency, but would have required at least several and perhaps eight different ones, most of which could not have been produced from a simple photographic copying of the Field Museum photograph or of a photograph taken by Ted himself.'

Soon after this session, Serios's psychic powers waned and within a year, although he continued to submit to experiments, all he could produce were 'blackies' or 'whities' without discernible images, leaving psychological researchers still baffled about just what paranormal forces had been at work to produce his astonishing pictures.

Serios had lost his powers at other times – the longest period being for two years – and it seemed to happen without warning. He said: 'It is as if a curtain comes down, ker-boom, and that's all, brother.'

But perhaps there was a warning. The last supervised full-frame thoughtograph he produced was in June 1967 . . . and it showed the image of a curtain.



Left: Serios's version of a life-size model of a group of Neanderthals in the Field Museum of Natural History in Chicago (below)



Further reading

Jule Eisenbud, *The world of Ted Serios*, Jonathan Cape 1968

Tomokichi Fukurai, *Clairvoyance and thoughtography*, Rider 1931
Edgar Mitchell, *Psychic exploration*, Paragon (New York) 1979

James Randi, *Flim-flam! – the truth about unicorns, parapsychology and other delusions*, Lippincott & Crowell (New York) 1980



A shameful affliction

In primitive societies hysterics were often regarded as favourites of the gods, and mass hysteria was frequently used therapeutically. Yet many doctors today refuse to recognise the phenomenon. BRIAN INGLIS investigates

MASS HYSTERIA has three components: loss of control, mimicry and contagion. The loss of control may be of a mental or physical kind, or both, and it tends to take much the same form in all victims of the same outbreak, as if some kind of mimicry were involved. The way in which the symptoms spread from person to person is as yet unexplained: epidemics break out suddenly and usually unexpectedly, and spread too quickly to be accounted for in terms of virus transmission. The reason for the epidemics remains a mystery; but a look back over the historical background of the phenomenon offers some clues to its solution.

It is important to realise that many societies show little of the fear hysteria provokes in the West; indeed, in tribal communities it is still commonly held in respect, even reverence. The tribal shaman, witch doctor or medicine man, as anthropologists soon discovered when they began to investigate tribal life, was usually chosen precisely *because* he was an hysteric – that is, because he periodically went into trances in which he became clairvoyant or clairaudient. Often it was assumed that his inspiration came from the

Voodoo dancing in Ouidah, Benin, in west Africa. In this form of mass hysteria, the participants believe that divine beings select certain people and put them into trances; the gods are then briefly incarnated during the stylised ritual voodoo dances

spirit world, that he transmitted messages from dead ancestors telling where the tribe could find game, how to escape enemies or treat a sick warrior, or where to find a sorcerer.

Induced hysteria was also commonly used in tribal life for therapeutic purposes. With the help, if necessary, of drumming, dancing and drugs, sick individuals would be put into trances in which they would have convulsions, talk in voices not their own, and collapse into comas. Sometimes the entire tribe would join in, hysterically imitating the symptoms of the sick member; at other times the whole tribe would become hysterical in order to shake off some collectively felt physical or mental ill. This was done in the belief that the convulsions and dissociation (speaking in strange languages) that hysteria induces are a way of throwing or shrugging off physical and emotional shackles and allowing health to return.

The belief that hysteria was linked with spirit forces continued in highly advanced societies, as the Old Testament reveals. The prophets acquired their role by their ability to go into trances in order to hear what the Lord had to tell the tribe. Homer, too, tells that the 'seer' was a respected figure – although he was often hard put to it to keep up with what the gods were doing, what with their continual in-fighting and capricious changes of mind. But in the *Hippocratic*

collection, an anthology of medical writings from the third century BC, hysteria is for the first time diagnosed, not as a gift from the gods, but as an illness. People who traded on the fact that they had fits, claiming that they were divine in origin, were denounced by Hippocrates and his followers as no better than 'witch-doctors, quacks and charlatans'.

How this change came about cannot now be ascertained with any certainty, but there is a plausible theory to account for it. The more civilised the community – and ancient Greece, the cradle of Western thought, was highly civilised – the less attention people paid to the gods and their utterances. Sacrifices were offered and observances kept up, but interest in what the gods had to say – and in their mediums, the hysterics – waned. Where divinely inspired hysterics still existed, their activities had become highly formalised, as with the oracles whose prophetic utterances were induced by fasting and hallucinogenic drugs, and were strictly controlled by their priests and priestesses. Spontaneous hysterical dissociation in public had ceased to be respectable.

One of the major incidents of hysteria as a divine or spirit force occurred at the first Pentecost, when the disciples' convulsions and dissociation convinced them that the Holy Spirit, promised them by Jesus before his death, had indeed possessed them. Henceforth they could follow in Jesus's footsteps and actually receive his word directly through clairaudience – or have it passed on by angels. Within a couple of centuries, however, as the Christian Church began to establish itself, against considerable odds, hysteria and its consequences came to be viewed as a threat to the security of the Church – the lack of control



Above: in the strange Good Friday procession of flagellants in the Philippines, hundreds of masked men whip themselves until the blood flows. This self-scourging, or flagellantism, was also common in Europe during the late medieval period

might, it was feared, breed heresy, and without a firm ideological base the Church would be vulnerable.

God could hardly be working through so erratic a medium of transmission as hysterical fits. The Devil could work miracles, just as he could cite scripture, for his own purposes. The fact that her visions and voices were of angels did nothing to protect Joan of Arc: she suffered the fate of a witch.

'Possessed by the Devil'

For centuries, mass hysteria was taken to be a symptom of diabolical possession. The most notorious epidemic in Europe was a dancing mania, 'St Vitus's dance', a convulsive neurological disease that periodically broke out in areas ravaged by war or famine towards the close of the Middle Ages. Later epidemics of mass hysteria were reported chiefly from institutions such as the Loudun convent in France where, in the 1630s, investigators sent by Louis XIV watched the Prioress and her nuns writhing in convulsions and screaming obscenities.

Occasionally, however, it had to be admitted that the forces at work were potentially beneficial. By the time of the protracted epidemic at St Medard, near Paris, a century after the Loudun case, the naïve belief in the Devil had been considerably eroded; and it was noticed that the *convulsionnaires*, as they were called, developed extraordinary immunity not only to pain, but also to injury. They could be beaten with heavy mallets, jabbed with pointed sticks, suspended above fires, without any sign of injury. Even the Scottish philosopher – and arch-sceptic – David Hume had to admit that the evidence for these miraculous powers, even though he himself could not accept it, had been proved by judges of unquestioned integrity and, as he phrased it, 'attested by witnesses

Below: religious ecstasy at Thaipusam, a Hindu ceremony, in Kuala Lumpur



Mass hysteria

of credit and distinction in a learned age'.

Some churchmen began to argue that the convulsions and dissociation observed in hysterical subjects were not necessarily diabolic in origin. On the contrary, they could represent a struggle to throw off the Devil or his demons. A Swiss priest, Johan Gassner, attracted great crowds to what were, in effect, services in which healing was induced by hysteria, hundreds of people joining in mass exorcism. The early Quakers, and Shakers, adopted much the same technique; its Christian origins were in Pentecost, but its beginnings went much further back in tribal medicine.

Franz Mesmer tried to put a scientific interpretation on the force that swept through participants on such occasions. He called it 'animal magnetism' – a form of magnetism capable of conversion into biological energy. Contrary to common belief, Mesmer did not use what we now call hypnotism in his healing sessions. He set out to induce hysteria in his patients so that they had fits, dissociated, and sank into comas – and, although the hostile investigators appointed by Louis XVI at Marie Antoinette's request rejected his theory of animal magnetism, they had to admit that many patients seemed much better for their treatment.

'Spinal irritation'

By this time, however, doctors were beginning to search for a rational explanation of the phenomenon. They could not accept that people who were induced to have fits and talk like lunatics might actually be benefiting

An extraordinary outbreak of mass hysteria occurred at St Medard, near Paris, in the 1730s. The victims, or *convulsionnaires*, developed what seemed to be a total immunity to both pain and injury; this contemporary engraving (bottom) shows them being kicked and beaten by interested observers without showing any sign of pain. Even the arch-sceptic philosopher David Hume (below) was impressed by the evidence for their remarkable powers



from the experience. Mass hysteria came to be regarded as a nervous disease (described as 'spinal irritation' or as a manifestation of religious mania, as indeed it could be: descriptions of revivalist meetings reveal that congregations frequently became hysterical – as they still do.

Even the fact that, in the hysteric condition induced by Mesmer's techniques, people lost all feeling of pain was rejected by the medical profession. Periodically, painless surgery was demonstrated upon 'magnetised' patients – an inestimable boon, had doctors been prepared to use it, in an age that knew no anaesthetic drugs – but orthodox surgeons claimed that the patients were only pretending to feel no pain.

By the beginning of the 20th century, the fact that hysteria had some valuable properties had been forgotten. In individuals it was taken to be disordered behaviour; in groups, an indication of self-indulgence, whether by silly schoolgirls copying each other, or by members of revivalist sects becoming over-excited. Psychiatrists even began to express doubts as to whether the clinical condition of hysteria actually existed: might not all cases of apparently hysterical behaviour be accounted for by physical disorders such as epilepsy, psychoses such as schizophrenia, or simple play-acting?

Gradually, however, epidemics of hysteria in schools began to push their way back into the news, until in 1964 the medical correspondent of *The Times* suggested that a diagnosis of mass hysteria, 'even if in these days of scientific materialism it is verging on



l'ère majesté, was sometimes the only one that fitted the facts.

What he probably had in mind were certain outbreaks in hospitals, for some of these epidemics had an embarrassing feature. The victims were not the patients in the hospital beds. They were nurses, ancillary staff, medical students, junior doctors and even – perish the thought! – consultants.

A case in point was the epidemic that occurred at the Royal Free Hospital in London in 1955, when nearly 300 members of the staff succumbed to a mysterious illness whose symptoms followed the classic pattern of mass hysteria: loss of feeling, muscle spasms or tremors, diffused aches, giddiness, constricted throat, and so on. But relief that, in most cases, recovery was rapid, was soon overshadowed by embarrassment: as no physical cause for the outbreak could be found, it might have to be put down to hysteria.

Whatever name such outbreaks are given – the Americans, who have had the same experience in hospitals and other institutions, prefer 'epidemic neuromyasthenia' – they clearly belong to the same family as those reported from schools, convents and factories. The signs and symptoms vary in different outbreaks, but the resemblances are more striking than the differences. To try to pretend that the symptoms are organic, *real*, in hospitals, but hysterical in schools, is childish.

Misleading diagnosis

Because epidemic hysteria is not a notifiable disease, because it is often put down to some cause such as a virus, even when none can be traced, because it is so often in the interests of those in charge of the schools, hospitals or factories in which it occurs to hush it up – for all these reasons, there is no clear evidence of how prevalent it is. Even the medical journals now concede that it is much more common than it used to be.

Yet mass hysteria remains a mysterious disease, and the outbreaks are investigated less with a view to finding out more about it than simply to eliminate all other possibilities. Only when the bacteriological and other tests have proved negative is mass hysteria considered as a possibility – and then, as a rule with, as it were, a shrug of the shoulders, as if to imply that it really isn't worth investigating any further.

But of course it *is* worth investigating further, because the historical clues suggest that it has two extremely important, and potentially useful, features. One is the way in which hysterics feel no pain and suffer no injury in circumstances where they would ordinarily be in agony from burns or bruises. It requires little imagination to realise how valuable it would be if this latent faculty could be developed.

The other feature is the process by which hysteria is transmitted within a group of people. All that can be said within the limits



Above: a religious sect of 'jumpers' in Irkutsk, Siberia, at the turn of the century, in a contemporary illustration from the *Petit Journal*

Left: the famous 'whirling Dervishes', or Mevlevi, members of an Islamic religious fraternity, in their ecstatic dance – a central part of their faith

of present knowledge is that, for want of a better description, it appears to operate through some kind of psychic contagion. Materialist science rejects the concept of psychic contagion; but the very foundations of materialist science are shifting. Medical researchers are prepared to consider factors that they would once have ignored. Whatever form the transmission takes, in any case, it should certainly be explored – for a better understanding of it could have a profound importance for the study, not only of hysteria, but of epidemics, physical and emotional, in general.

On page 726 we investigate the fascinating link between mass hysteria, disease – and ESP



The impossible moon

A consensus has grown up among astronomers about many aspects of the Moon's origin and development. NIGEL HENBEST brings this modern knowledge to bear on claims that the Moon has been colonised – and may even have been built – by aliens

ASTRONOMERS FIND THE MOON a strange world, in some ways the oddest body in the solar system. The manned Apollo missions answered many questions about our natural satellite, but they raised many more questions that still puzzle scientists. A number of non-scientists have also tried to interpret the spate of new results and photographs for themselves – often in the most uncritical and sensational manner.

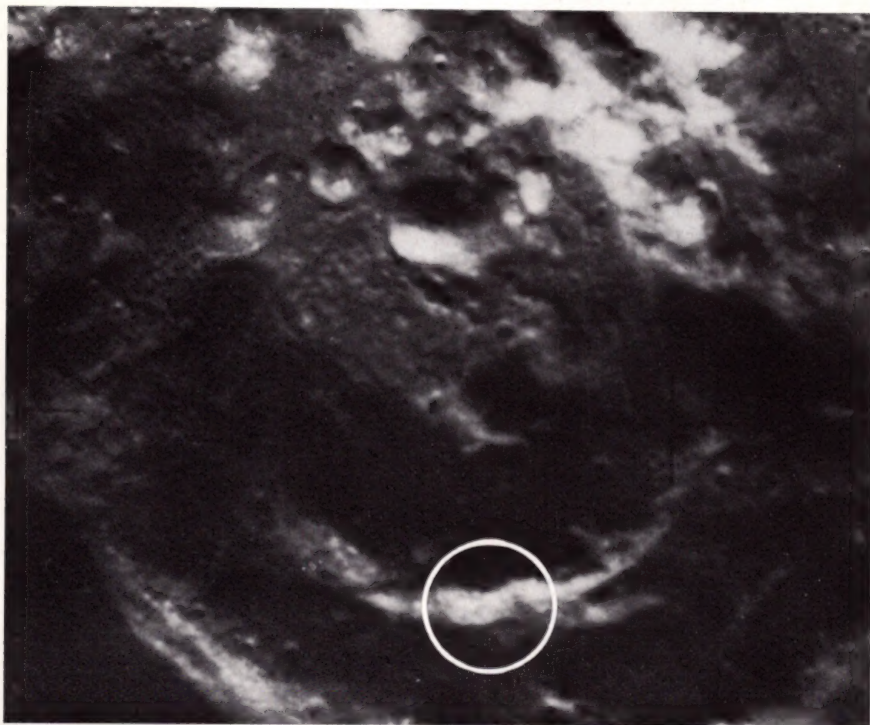
The supposed evidence for aliens on the Moon does not stand up to close scrutiny: the more one investigates them, the less convincing do the claims become. The supposed artificial constructions are a case in point. They are certainly not obvious on the photographs themselves. Leonard reproduces many of them in his book, and despite identifying circles and arrows it is impossible to see anything remotely like his descriptions in at least half the plates. The others show merely tiny objects, too small to make out the details that Leonard describes. Leonard in fact recommends studying original prints from NASA with a magnifying glass, and

concentrating on each small area for an hour. As one's eye becomes accustomed to the fine detail, so the artificial objects will appear as he has sketched them.

Unfortunately for Leonard, it is an established fact that straining the eyes to see something at the limit of visibility is a sure way to strengthen optical illusions. The Moon's surface is a confused jumble of broken up rocks, ranging in size from high mountains down to small stones. These jagged fragments result from the impact of high-speed meteorites billions of years ago, and in the Moon's airless, waterless environment they have not weathered down to smoother, more familiar shapes. Because the Moon has no atmosphere, the rock shadows are completely black; rocks caught by the sunlight are brilliantly lit, and the contrast enhances the totally un-Earthly appearance. Under magnification, the photographs become an abstract collage of black and white, so unfamiliar that it is easy to make out patterns that do not exist.

Psychologists know that the human eye tends to simplify details at the limit of seeing,





Above: a blown-up view of part of the crater Pasteur, on the far side of the Moon, fails to reveal the 'super-rig' of filigreed metal that George Leonard claims to have discovered at the indicated site. The dark 'notch' to the left has supposedly been cut by two smaller rigs, which are equally hard to see

Right: the elaborate network of canals in Schiaparelli's 1886 map of Mars has been shown by later telescopes and space probes to be illusory

Top left: the rugged surface of the Moon, seen from the orbiting Apollo XII module. In these harsh highlights and shadows, unsoftened by atmospheric haze, the eye can often 'detect' apparent structures and illusory patterns

Left: Buzz Aldrin, second man to walk on the Moon. The priceless samples of Moonrock brought back by the Apollo astronauts answered some questions about the Moon's true nature, but raised others that are still unanswered

and to look for familiar patterns in chaos. Irregular dark and light patches are seen to have straight, sharp edges and right-angled corners, and rounded objects appear as perfect ovals or circles. And once the eye has seen a particular pattern, one of Leonard's 'x-drones' for example, it is easy to make out similar patterns in other confused regions. A similar psychological effect occurred when Giovanni Schiaparelli saw straight lines – 'canals' – on Mars in 1877. Immediately after his announcement, other astronomers began seeing the canals. We now know that they do not exist, but are caused by the human eye straining at the tiny image of Mars and subconsciously joining up isolated dark patches into apparently ruler-straight lines.

At the limit of vision

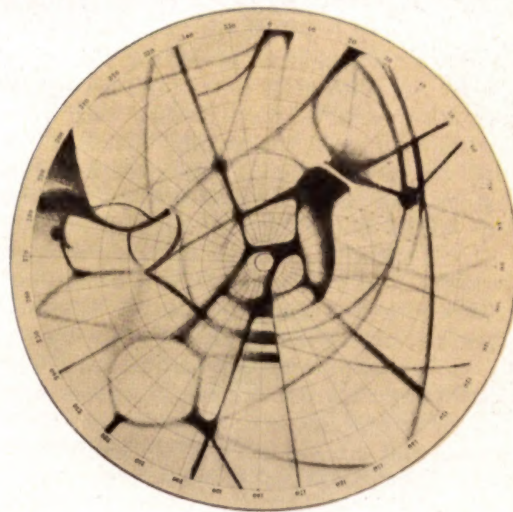
Leonard's 'constructions' seem to be illusions of this kind: his sketches show cleaner, sharper lines and smoother curves than appear on the photographs. He loses his own case by relying on drawings made at the limit of vision. If his constructions *do* exist, all he need do is enlarge the relevant areas of each photograph to show the 'obvious' artefacts.

Don Wilson ropes in a wider range of evidence to show that the Moon is a hollow alien spaceship. His case rests on a large number of mysteries surrounding our present knowledge of the Moon, mysteries that – he claims – are solved by the one simple assumption that the Moon is a spaceship. But looked at in detail, his arguments crumble.

For a start, some of his supposed evidence is not 'mysterious' at all, but is perfectly in line with orthodox theories of the Moon's development – which Wilson often misrepresents. One example is as follows. According to present astronomical ideas, the

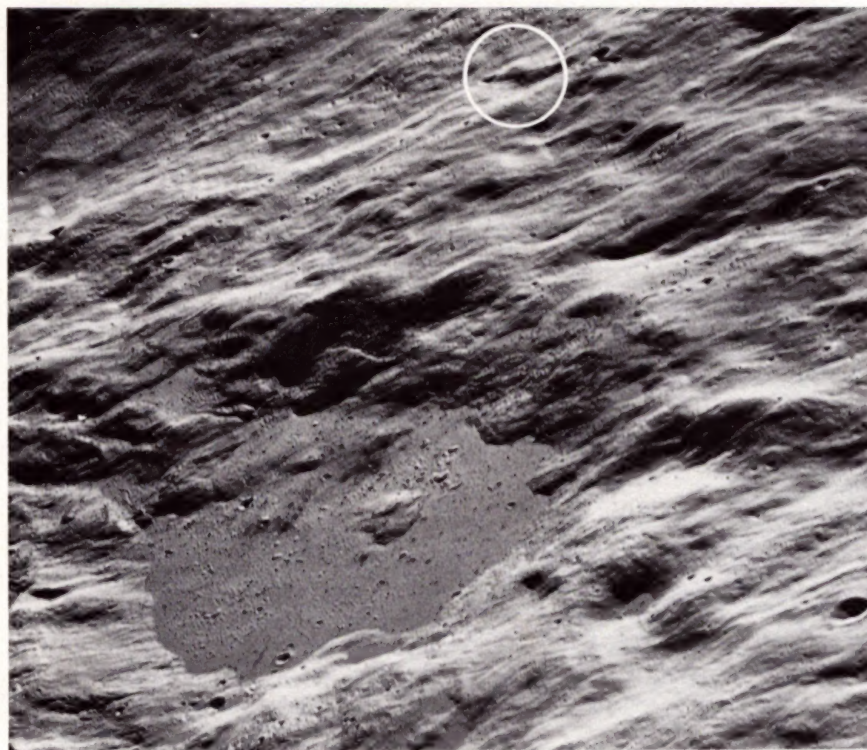
Moon suffered intense bombardment by large meteorites in its earliest days, and the largest of these blasted out wide craters, hundreds of miles across. Later on, rocks below the surface melted into lava, some of which migrated upwards to emerge through the lowest-lying regions – the bottoms of the largest craters. These circular hollows were filled by dark lava, to give the round plains we now call *maria*. By the time the plains appeared, the worst of the meteoric bombardment had stopped, and so the *maria* are less peppered with small craters than the older 'highland' crust.

This history is confirmed both by the composition of Moon rocks and by their ages. Yet Wilson makes a contrived mystery of the *maria*. 'There is yet another mystery of the *maria* – the way they are shaped and distributed. Many appear to be circular in shape. . . . Still another mystery is why these areas appear to be so empty of craters. . . .' The only slightly odd fact in this list of 'mysteries' is the uneven distribution of *maria* on the Moon – and Wilson admits that his own theory cannot explain this!



Another fruitful source of 'mysteries' is the scientific discussion of the early 1970s, when the Apollo astronauts were returning the first Moon rocks to Earth. This first knowledge of the actual ages and compositions of lunar rocks naturally meant that earlier theories had to be revised quite substantially, and lunar scientists argued quite vociferously over the new results and their interpretation. A writer who collects all the arguments – however trivial – against each theory, and neglects the arguments in favour of each, can readily create the false impression that none of the theories is tenable.

In fact, astronomers have now been able to interpret the broad outline of the Moon's past in an unambiguous way, and although there are still some disturbingly strange results, they do not clash with this outline. Wilson's concern with the disparate ages of Moon rocks and the soil they lie on, for example, is no longer a puzzle. Radioactive



atoms in them that act as natural clocks are 're-set' by meteorites hitting the Moon. So when we date a rock thrown out by a meteorite impact, the method tells us when the impact occurred – and this event is naturally more recent than the formation of the soil on which the rock ends up.

The scientific evidence is strong enough to prove directly that the Moon is not hollow, destroying the central tenet of Wilson's theory. One of Wilson's arguments is that the Moon has an unexpectedly low density. The Earth's average density is 0.00034 pounds per cubic foot (0.00552 kilograms per cubic metre) and the Moon's 0.00021 pounds per cubic foot (0.00334 kilograms per cubic metre). To produce the lower density, it would seem that the Moon must be largely hollow inside. In fact, the Earth's average density is high for two reasons: the rocks inside are compressed to high density, and our planet has a large core of dense iron. The smaller Moon compresses its centre less, and 'moonquake' results show it has little – if any – iron in its centre. The Moon's surface rocks have a density of 0.00019 pounds per cubic foot (0.00296 kilograms per cubic metre), and compression of such rocks towards the centre should result in the Moon having an average density close to 0.00021 pounds per cubic foot (0.00334 kilograms per cubic metre): a hollow Moon would have too low an average density.

The most incontrovertible evidence against a hollow Moon comes straight from the moonquake recorders left by the Apollo astronauts. When meteorites – and discarded Apollo landing modules – hit the Moon's surface, they set up vibrations that are recorded by these seismometers. Straightforward

Above: a 'spray' emerges from a small crater in the highlands near the crater King on the Moon's far side, according to George Leonard. The arc could be a trick of the undulations in the surface – but he believes it is real, and a by-product of engineering activities in the crater

Below: rocks brought from the Moon's surface are found to be low in density. They indicate that the Moon is solid, not a hollow artificial construction



earthquake analysis shows that the seismometers record waves that come *through* the Moon, as well as along the surface. Wilson claims that the Moon's surface is a 20-mile (30-kilometre) thick shell; below is a 30-mile (50-kilometre) gap where the aliens live (or lived) and below that again is the Moon's main body. But there is absolutely no way that vibrations from the opposite side of the Moon could have travelled down through this empty gap from the surface to the main body of the Moon, and then up through the gap again to be detected by the automatic moonquake recorders.

The solid Moon

Natural moonquakes also give exactly the pattern expected for small disturbances near the Moon's centre. Again, it would be impossible for these waves to travel up through an empty region below the surface. A thorough seismic analysis, based on well-tried earthquake studies on Earth, shows that the Moon's rocks certainly do not stop 20 miles (30 kilometres) down. In fact, the analysis proves that the rocks become denser and more solid below that depth!

There is enough evidence from the Apollo missions to convince any open-minded person that the Moon is not inhabited by aliens: it is not a colony or spaceship, but a natural satellite. The basic framework of the Moon's history is now clear, and those who still dispute the conventional interpretations are exaggerating minor scientific debates out of all proportion, picking on the minutiae of evidence in the huge amount of published literature on the Moon – some half a billion words in total. (Ironically, such nit-picking applied to their own ideas would demolish them at a stroke.) Yet the barren Moon, so different from our blossoming Earth, is undoubtedly an intriguingly odd world.

On page 735: the lunar mysteries that the astronomers haven't yet solved

Dear Sir,

I thought you might be interested in an experience my mother and I had some two years ago. My father had just died, leaving my mother alone in the house. She was very upset by his death, and I went to stay with her for a short while.

The morning after my father died, my mother and I went into the living room to find my father's desk overturned. Neither of us had heard anything during the night. I set the desk upright again. The next night, I was woken by a crash and my mother came running into my bedroom. Both of us were very frightened, and we went downstairs to the living room, where we thought the noise had come from. Again we found my father's desk overturned, and its contents spread over the floor. We left it as it was, and on the stairs on the way back to bed my mother screamed out, pleading for this phenomenon to stop. It did – nothing strange has happened since then.

Yours faithfully,

John Seagrim

Sherbourne, Dorset

Dear Sir,

I am writing to tell you about something that happened to me some years ago. It was an astonishing experience that remains vivid in my memory, and I was amazed to read in a letter you published in issue 15 of *The Unexplained* that someone else has had a similar vision.

At approximately 4.30 one morning I woke up suddenly. My bedroom door was open, and I half-opened my eyes, still feeling rather sleepy, and looked through to the landing. I was shocked to see a female figure standing there, looking out of the window at my next-door neighbour's house. The strange thing was that her whole body, apart from her face, which was shadowed against the darkness, seemed to be luminous. Otherwise it was pitch-black everywhere.

What I remember most about her are her blonde hair and her pink tunic-like dress. After a few minutes, I turned over and went back to sleep.

The next morning, I asked the female members of my family whether they had been up during the night. None of them had.

Since I read the letter you published, the thought has come into my mind that the figure I saw could somehow be more than a vision. Do any other readers have similar experiences?

Yours faithfully,

S. Marshall

Bushey, Hertfordshire

Dear Sir,

I was interested in the letter from R. C. B. Jones of Chester regarding an explosion over the Berwyn mountains on the night of 6 August 1976 (issue 18). I was living in Glyn Ceiriog at the time and heard it.

The explosion was extremely loud, but had a dull, muffled sound. The earth shook as though from a heavy impact. The sky lit up brightly, and stayed like that for several minutes.

A report appeared in the *Wrexham Leader* the following day, and it was the talk of all the nearby

villages for weeks afterwards. Forestry workers reported that army trucks and personnel scoured the (rather barren) area for some time, but officialdom apparently put a ban on all further news reports, for nothing else appeared in the papers.

Yours faithfully,

V. C. Worthington

Gobowen, Shropshire

Dear Sir,

I write in reference to the articles and correspondence on Black Madonnas.

I should like to write a few words for the benefit of the gentleman in Edgbaston who wrote the most sanctimonious and dictatorial letter (issue 24) suggesting that these ancient symbols of the past should be 'sanctified' and their true significance ignored.

Black Madonnas are indeed a relic of ancient pagan rituals. They once represented the earth goddess – a personification of a 'female' type of earth current, deadly in its negative power, and the antithesis of the positive, healthy 'male' current. The earth goddess often did great mischief and damage, and where she exists and lingers today in great negative 'pools', she can harm and damage health in nearby homes, crops and animal life. The child in the arms of the Black Madonna represented the male current, over which the Madonna was dominant and overpowering. The male current is the beneficial power, and courses through the earth in streams of life-giving force. Many standing stones represent eddying pools of this male force, while others represent the female force, which is symbolised by a coiled serpent or snake. The male force is symbolised by phallic stones and obelisk-shaped markers. Both the currents, male and female, are correspondent to the so-called 'kundalini' or psychic power within the human body, sometimes called the 'serpent fire' and usually symbolised by a coiled snake. Within the human body, both currents are equally balanced and therefore complementary to one another.

In ancient times, Man worshipped the negative force in nature in the original Black Madonnas – though Madonnas they certainly were not – and set up small shrines to her in places where he knew the earth currents met. In these places, the child in the Madonna's arms indicated that the male current was not active.

I am sorry if I have destroyed the illusions of the gentleman in Edgbaston, but I would like to remind him of the old – and I hope not too trite – quotation from Shakespeare: 'There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy.'

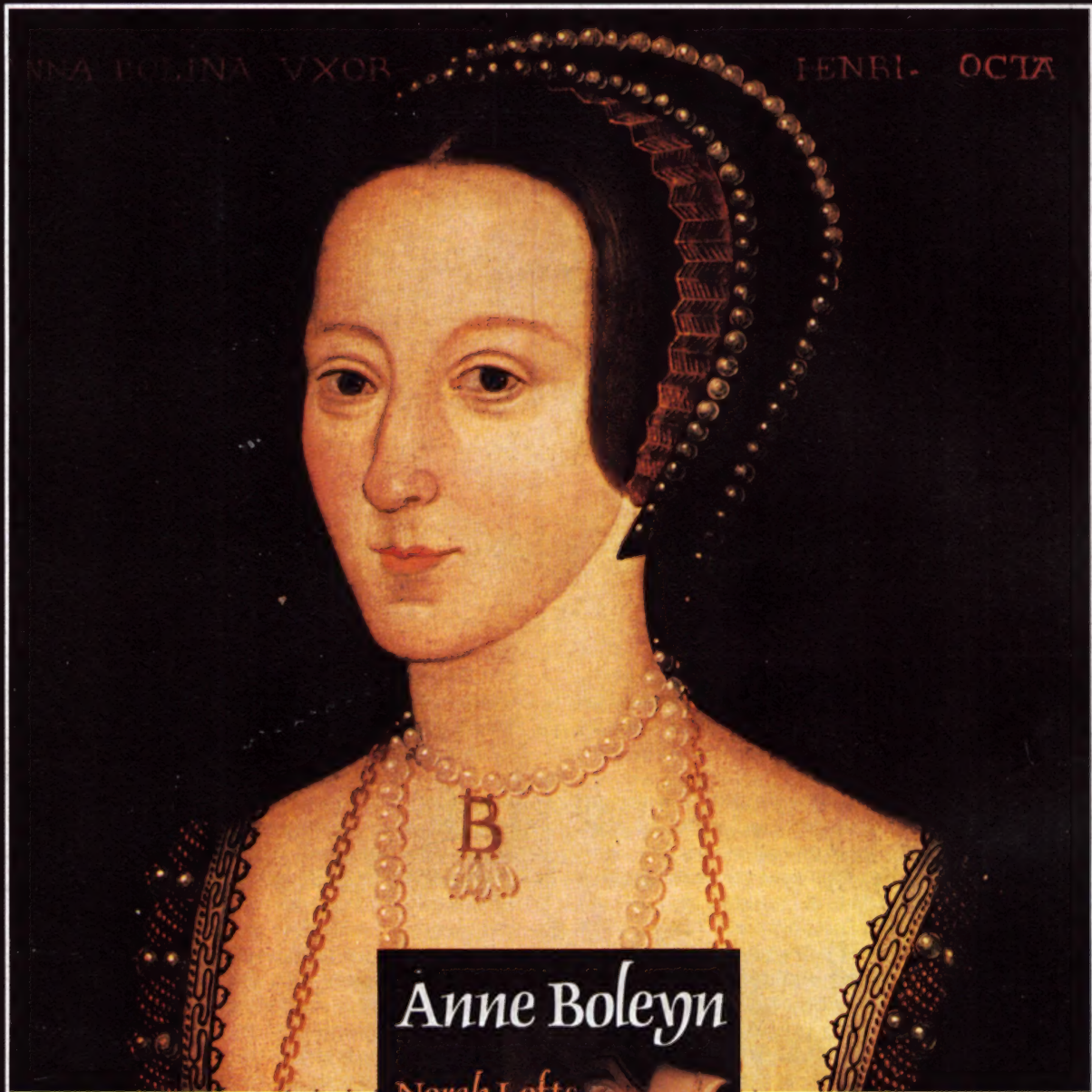
Yours faithfully,

Magus Incognito

Amesbury, Wiltshire

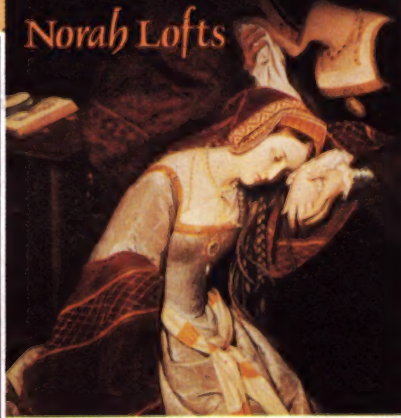
We would like to thank everyone who has written to us in support of our articles on Black Madonnas. At the same time we would like to point out that we have made an exception in publishing these two pseudonymous letters; it is our editorial policy not to publish letters from readers who do not supply their full names and addresses, although we are, of course, happy to publish them anonymously if asked.

Whore, witch or innocent enchantress?



Anne Boleyn

Norah Lofts



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